AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICES CURRENT.

" O fortunatos nimium sua si bona norint
" Agricolas." . . . VIRG.

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AGRICULTURE.

TRANSACTIONS OF THE

Agricultural Society

OF NEW CASTLE COUNTY, IN DELAWARE.

S. H. BLACK'S MEMOIR.

[*Continued from Vol. II, page* 35.]

Kilns have sometimes been erected for the purpose of burning oyster shells, but I deem this a useless trouble, and expense. The process of converting shells into lime may be made extremely easy, and simple. It need consist of nothing more than a square, or an oblong square pen of logs, which may be made of any old, and otherwise useless timber: in this pen, the shells are thrown in layers of about a foot thick, with brush, old wood, or worn out rails between; and when thus built up to the height of five, six or more feet, fire may be put to different places; and if advantage be taken of a windy day, the whole will soon be reduced to the desired state. From some experiments which I have made, with a view to ascertain the relative force of the stone, and shell lime, I am induced to give a decided preference to that obtained from the shell; the latter exerts its influence upon the soil *immediately*. This is not so obviously the case with the former; except indeed some manure be added with, or immediately after. The shell lime contains less sand, and a more pure, though a less caustic alkali. And this I take to be the chief principle by which both act, in promoting vegetation.—Whether the shell lime will prove so durable in its effects, as that obtained from the stone, I am unable to say; I should rather incline to believe that it will not. Yet this is in my mind at least, a matter of little, or no consequence; as either of them will, beyond all doubt, last long enough to put the land to which they are applied, in a situation to do extremely well without them. A soil once made in depth, and quality truly first rate, will never afterwards be worn out, if not very badly used.

Where the oyster shells can be had at any price less than twenty dollars the hundred bushels, the lime obtained from them will be found *cheaper* than that of the kilns. This alone is a powerful argument in favour of this species of lime; for although I believe that lime properly applied to land, virtually costs nothing; yet as it is to be paid for by the surplus produce, the less that is given for it at first, the sooner will the improver be reimbursed. If my estimate be correct, that one hundred bushels of shells burned will produce seventy bushels of lime; and that this seventy will be about equal to fifty of stone lime fresh from the kiln, it will follow, as certain, that where the stone lime costs forty dollars per hundred, the shell lime will be worth twenty dollars: as much less than this, as the shells can be obtained for on the ground, so much the more, therefore, will they be an object worthy the notice of the farmer.

Shells from which living oysters have been taken, or such as are obtained from oyster houses in towns and cities, are at least twenty per cent. better than those obtained from the beds, and in which the oysters have been long since by some accident destroyed. The former are much more sound and firm, and have much less mud, or other extraneous matter adhering to them.

I have had no experience of the *clam shell*, but upon comparing these with the oyster shell, I think it highly probable that upon trial they would be found to produce considerably more lime to any given quantits of shells than that of the oyster. They are however, I imagine, at least in our peninsula, not to be had in quantities sufficient to be extensively useful.—The external covering of many other species of shell fish, and even the bones of animals decomposed by fire, or time, are well known to act powerfully as a manure, yet the same insurmountable objection of *scarcity*, will apply equally to all of them.

When the lime intended for the improvement of a poor soil, is fresh, and unslaked, the ground designed to receive it should be struck out shallow with a plough, in furrows crossing each other at right angles, and thirty feet apart, when one bushel of lime dropt at the intersection of each of these furrows will give fifty bushels to the acre. But if the lime be slaked, then the furrows must be no more than twenty-five feet distant from each other, and for shell lime, a like distance must be observed; which will allow to each acre about seventy bushels. For the second liming, when it is intended to double the quantity, it only becomes necessary to contract these distances one half.*

It will perhaps, be better, especially where the land is stiff, if it be well broke up with the plough, before laying down the lime. And if the lime used be unslaked, it must remain in these bushel piles until it fall, which it will soon do, by the moisture absorbed from the atmosphere, immediately after which it should be very carefully spread, so that no one part of the ground shall receive more, or less than another.—And to do this correctly, great caution will be necessary. It is inconceivable what mischief may be done by an apparent trifling irregularity upon this subject; and more particularly upon a poor soil, at its first liming. Fifty bushels when spread over an acre of ground, appears indeed to be a very inconsiderable thing. Lime, however, as before remarked, is truly a powerful agent; and if any part of the land should, in the process of spreading, receive more than its due proportion, the vegetation will be certainly and totally destroyed upon that spot, for several years after: independently of this too, if some places be destroyed by receiving too much, other spots must suffer for want of their proper quantity.† As soon as the lime has been spread, which should, if possible be in the month of October or November, the ground should be again flushed, and thus remain until the following spring; when one other ploughing will prepare it for the reception of a crop.

The first crop, on limed land, should most obviously be Indian corn, or corn and potatoes as before suggested; as by the working of these through the summer, the lime becomes completely mixed, and incorporated with the soil, which so neutralises its carstic properties, as to fit it for the growth of a more tender crop.

It may be proper, before saying any thing further on the method of cultivating the potato, as it has necessarily connected itself with the matter of this essay; to remark something upon the importance of this root. And whilst I do this, I entreat, as on indulgence, the patience, and further attention of this society.

I feel persuaded, that the potato has been too much neglected by Farmers. This simple, though important article, constitutes a delicate, wholesome, and nutricious food, both for man and beast. It may under certain circumstances become alone a substitute for bread, especially upon the tables of the poor.—During a scarcity, and consequent high price of bread stuffs, it becomes an invaluable object to society.—The crop of this vegetable is more certain, and will be more abundant upon any given quantity of land; and will require withal, less labour or expense, than any species of grain with which we are acquainted.* Those indeed who have attempted the cultivation of the potato, have seldom, if ever been disappointed in their produce. Bread made, by mixing one third potatoes with two thirds of wheat flour, is in quality decidedly superior to that made with flour alone; and many upon trial, have even allowed a preference to that made with potatoes and flour in equal proportions. Two years have not yet passed since Indian corn sold currently in our markets at $1 75 per bushel, wheat at $3 00, rye, at $1 75, buckwheat at $1 75, oats at 75 cents; and every other species of grain in proportion, whilst potatoes could be had at 50 cents the bushel. Although these prices in the grain market, are admitted to be extravagant and unusual, yet, as they seemed clearly to result from a single general failure of the corn crop, of the preceding year: and as we remain liable at all times to such failures, it may be easily seen of what incalculable importance the potato may become to society. It is quite possible indeed, that millions of souls may yet owe the continuance of their very existance to this neglected root.

And as a food for stock, potatoes are at all times valuable. Hogs are well known to feed upon them greedily, and to thrive well by their use alone. It is however not so well understood that horned cattle, sheep, and even horses, by a little usage become extremly fond of this vegetable, and will live more healthy, and continue fatter upon this than upon almost any other common species of food. When intended for hogs, or horned cattle, potatoes should be boiled to a soft pap, and mixed with shorts, cut straw, or the slop of the kitchen. For horses, or sheep they should be carefully washed, cut in small pieces, and lightly sprinkled with salt. In this state, sheep may be kept well through our most severe winters, with but little other food. And horses, after a little use, will be found to eat them freely, and to grow fat by their use. How much better then would it be, if our farmers could be persuaded to raise a sufficient quantity of potatoes to serve as food for their live stock through the year, than to do as many of them are in the habit of doing, either keeping their dumb animals in a state nearly approaching that of starvation; or by feeding tolerably, consume nearly the whole of their corn, and oat crops? Many farmers who till a sufficient quantity of poor land to produce them five or six hundred bushels of corn, and perhaps as much of oats, are compelled to keep a family, and a live stock so numerous as to prevent them in the ordinary way of doing business, from selling more than one, or at most two hundred bushels of each of these grains; and if strict justice in fact was done to the appetites of these, there could be no such grain from these farmers, for the market.

Potatoes contain more nutritious matter than the same weight of either corn or oats.† Though they may not impart the same solidity to the fat or flesh

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* To about 21 feet, "half the distance" will make four times the number of intersections. *Edit. Am. Far.*

† It will require much more lime to kill vegetation than is supposed: a gentleman near this, applied 500 stone lime without that effect. *Edit. Am. Far.*

* We think 2 acres of potatoes as much labour as 3 of grain, allowing it to be 20 bushels of wheat, and still more expensive. *Edit. Am. Far.*

† By Sir H. Davy's scale. potatoes contain $\frac{230}{1000}$ of nutritive matter, wheat $\frac{900}{1000}$, and we are sure corn contains as much as wheat. *Edit. Am. Far.*

of the animal as the former grain; I am however, strongly inclined to believe, and I think not without good reason, that if the habit of using potatoes as a food for live stock, could once be brought into general use, they would be invariably preferred to either the corn, or the oats: as the potato certainly does not possess the heating inflammatory properties of the one, nor the feeble and transient effects of the other. Where a great number of horses are kept for draught, in carriages, baggage-wagons or stages, with perhaps but few hands to attend them, the superior convenience derived from the use of corn, or oats, as feed, will perhaps always give to these grains a preference. But to the farmer who generally keeps throughout the leisure season of the winter, many hands in proportion to his stock, the boiling, or washing and prepairing potatoes could be no serious inconvenience. And for each bushel of them thus used, he might in return save a bushel of his corn, or oats for sale. And I deem every cent saved in this way as absolutely clear gain; seeing that the cultivation of this vegetable may be so managed as to cost the farmer no additional ground; and but little, if any additional labour. This apparent paradox, I will attempt to explain.

The usual practice of planting corn, on a common soil, is in rows crossing in right angles, say four feet apart. One acre of ground thus planted, will contain two thousand seven hundred and twenty corn hills; and allowing to each hill two stalks, will give five thousand four hundred and forty. If these furrows be struck out one way only, and eight feet apart, and in these rows there be placed one stalk for every twelve inches, or two stalks for every space of two feet, the number upon the acre will be the same. If then by this plan, each stock will produce as many, and as good ears, the quantity of corn will be equal. I contend, that the ears will be *more numerous*, and *larger*; and that the quantity of corn proportionably *increased* upon any soil in this way, than when planted and tilled in the ordinary form; if there be manure used in planting the intermediate rows with potatoes. And if there be no manure in the potato rows, the quantity of corn will be at least equal under all circumstances to that obtained by the common way of planting.

If there be manure used in planting the potatoes, the corn will be better, because its roots will find free access to, and receive nourishment from that manure, although it be placed four feet from its stalks, just as well, and perhaps better than if within four inches of them, as the stalks will not feel the influence of the manure so soon as to throw them off in their growth too rapidly at first, and endanger the expenditure of its force before the time of earing, when most beneficial. I believe indeed, that the *distance* at which manure should always be placed from corn, should be governed by its *quantity*. If there be but little manure, it should be so placed as to insure its reservation until the stalk has been well grown, and the grain about to be made. If the quantity be great, then place it over the whole ground; there will in that case be no danger of having too much stalk and no ear.

But, if no minure be used in planting the intermediate rows of potatoes, yet the quantity of corn will be equal to that obtained by the common mode of planting, because, as the roots of the corn, although the rows be eight feet apart, will as certainly spread over the *whole* ground in search of nourishment, as if the stalks stood in hills, upon lines at right angles, four feet apart, and may be as well, if not better tilled one, as if ploughed both ways: remembering only, to place these rows north and south, thus securing the full action of the sun, and southerly winds.

It seems to have been determined by experience that a common soil will bear two stalks of corn for every sixteen square feet of surface; or one stalk upon every space of eight square feet.—Now I take it for granted that it will be found a matter of no consequence how these stalks be placed, provided first, that they be so arranged as to admit of being conveniently worked with the plough; and secondly, so that their roots, or fibres shall extend and spread themselves over the *whole* soil. It has been shown I think that by the plan recommended, the *number* of stalks may be made the same. Their arrangement in rows in one direction, will readily admit of being tilled so far as to keep the ground completely free from the growth of all extraneous vegetable matter; and at the same time so breaking up, and loosening its surface as to admit the free absorption of heat and moisture, which is certainly the only working necessary for the growth of corn.

If the ground be so strong as to bear what has been termed a drill, in the planting of corn; which is nothing more than placing the grains at the distance, say of twelve inches apart, in rows four feet from each other; in order to conform to the system recommended, it will only be necessary to place these grains within six inches of each other, and the rows eight feet apart, the result, as to the crop, will be the same, and one half the ground will be saved for the culture of the potato.

A soil sufficiently rich to produce eighty bushels of corn, by the common mode of drill planting, will I think, produce by the method here mentioned, at least an equal quantity, and additionally, not less than one hundred bushels of potatoes to each acre, without the use of manure.

I here speak with confidence; although contrary to a general, and long received opinion, I do not hesitate to assert, that potatoes may be raised *without the aid of manure*: and that too, as near to a full crop, as the same soil will produce of any other useful vegetable.

The idea, that manure is indispensible to the production of potatoes, has probably arisen, and been thus long obstinately maintained, in consequence of the farmer having almost invariably, so far at least as my knowledge extends, appropriated but a very small piece of ground for the culture of this article, in consequence of which he has always been enabled to cover it entirely with manure. And in doing so, he has rarely been disappointed in obtaining a *large* increase. Whilst, if he has ever seen the experiment made, of planting the same article upon a poor soil without manure, the produce has been so much less, as to create in his mind an opinion that it amounted, in fact, to nothing; comparatively so, it is beyond all doubt the case. And it is most devoutly to be wished, that our farmers could be induced to form, and cherish the same mode of thinking upon the subject of every other article common on farms. It seems indeed strange that they should not. Potatoes have nothing singular in this respect—the same thing exactly happens to every other vegetable of whatsoever species it be. The very best soil that could possibly be made, with the addition of as much of the strongest manure, as the cultivator might wish to have applied, in the planting of his potatoes, would not perhaps give more than four hundred bushels to the acre, simply because this surface would not admit of more stalks when placed so as to allow the necessary tilling than would be requisite to yield this quantity. He might therefore call four hundred bushels of potatoes *a full crop*, from one acre of land. One acre of poor soil, planted with potatoes alone, with an ordinary quantity of good manure, may produce about two hundred bushels, whilst the same acre planted without manure, as hereafter to be mentioned, will seldom fail to produce one hundred bushels. How stands the case, as it relates to other vegetables? say corn. One acre of poor land may yield ten bushels of this grain; the same acre, with one covering of fifty good cart loads of well rotted manure, will probably produce twenty bushels. Whilst, as we before attempted to show, the same surface is quite capable, by proper management, and preparation, to yield more than five times this quantity.

If farmers had been long in the habit of seeing, or in the practice of receiving eighty or a hundred bushels of corn from every acre of their ground, they would be as apt to deem ten bushels to the acre nothing, or comparatively nothing, as they now are fifty, or even a hundred bushels of potatoes. If they would use their corn only as they think it necessary to use their potatoes, it would rise just in the same proportion.

Manure, in the cultivation of potatoes, serves a two-fold purpose. First, in common with all other vegetable matter, the manure by imparting a strength and richness to the soil, promotes their growth, and the increase of produce. And secondly which is in some measure a circumstance peculiar to the potato, the manure acts mechanically, by keeping the surrounding earth loose, and thus preventing a too great pressure upon the potato. Nor will this latter be found a less important property in the manure, than the former. Hence the fact, known to every potato planter, that of all other species of manure the longest and coarsest, is the best to ensure a good crop.

Although the first purpose of imparting a richness of the soil is in fact, fully answered by short manure, as the scraping of a yard, ashes, or rich earth; and a full crop of stalks and leaves may by such means be produced, yet of the roots there will be no more, or but a little more, than if no manure of any sort had been used, and merely because the latter property of maintaining a lightness in the soil, is in no wise answered by such manure.

If the ground designed to be planted with potatoes be rich, no manure need be used. I believe indeed, the crop will be more abundant without it, if in its place, the seed be covered with half-rotted straw; the litter of a barn yard, or the fallen leaves taken from a wood; and upon this a light covering of earth. Such substances as these can always be obtained in abundance, and will be found to keep the ground as loose and light as the best manure. And if the soil be poor and manure cannot be had, the same method will ensure a tolerable crop of potatoes. Poor land planted in this way, will produce ten bushels of these for every bushel of corn which could be expected from the same soil. It would seem natural then to ask, if ten bushels of potatoes be not more valuable than one of corn.

Indian corn, however is an important article in husbandry, and cannot well be dispensed with; and it may be a desideratum in farming, to discover a plan, by which the greatest possible quantity of these two articles together, can be obtained from the smallest given quantity of land, and with the least time, labour, and expense.

The plan here recommended seems to approach as near to this point, as any which has yet come within my observation. It seems certain that under any circumstances, the quantity of corn will not be lessened; but that on the contrary, if manure be used with the potatoes, the crop of corn will be considerably increased. whilst on a poor soil, the potatoes will yield as ten to one of the corn. Whilst a very little additional labour indeed will be required; and certainly no loss of time will in any event be sustained, as both crops are put in, and taken from the same ground in one season.

If this scheme indeed be examined carefully, the profits arising from it will be found perhaps much greater, than at first view might appear.

Suppose a farmer was about to plant twenty acres with corn in the common way, and his ground was of such a quality as would warrant him in expecting from this field two hundred bushels, which sold in the market might bring him one hundred and fifty dollars. But on reflection changed his plan, and plants the whole ground with corn, and potatoes in alternate rows, using no manure with his potatoes, but covering them with leaves from his wood, as before suggested; and allowing his crop the same labour in tilling as if it had been corn alone. I think I am justified from actual experiment in saying, that he would have the same one hundred and fifty dollars worth of corn, and additionally not less than four hundred dollars worth of potatoes, estimating them at forty dollars per hundred bushels. Strange as this may seem there is yet nothing chimerical in the calculation; 'tis certainly true, that at all times, and under all circumstances; whether the seasons be favourable, or unfavourable; whether insects prey upon your crop, or whether they forbear; whether your fields be large or small; whether you till your crop well or ill; and whether you have manure, or have no manure, if you substitute for it in planting your potatoes, leaves, or useless straw, you will ninety-nine times I think in a hundred, have ten bushels

of potatoes for one of corn; nor will you have one bushel less of corn, than you would if there were no potatoes within the same enclosure.

There is but little danger either of over stocking the market—yet if it should even be otherwise, the farmer could use his potatoes to almost any reasonable extent; and in the same proportion save his grain for the market.

How extraordinary then would it seem, if a system should be neglected, by which the clear proceeds of a rich soil may be doubled; whilst it promises the only means by which any profit at all can be derived from the cultivation of poor land? I submit it to the consideration of farmers; and hope they will try its effects. If after the plan has been fairly tested by experience, it should be found profitable, it will be pursued as a matter of interest. If it should prove otherwise, it will as certainly meet the fate it deserves.

When this essay was commenced, nothing could have been further from my expectations, or designs, than that it would ever become necessary to extend it to any thing like the length which it has already attained. Notwithstanding a constant effort has been maintained from the beginning, to touch as briefly as possible on every subject, which seemed to be naturally involved in the main point; yet, what it was thought might be comprised within the compass of a few pages, has nearly become a volume. It has in fact been found, that to examine "the intrinsic value of an acre of arable land," would necessarily connect with it, a discussion upon the whole science and art of farming. And to do simple justice to the subject would require infinitely more talents, and time, than I can command. Early perceiving this, I abandoned all hopes of doing more, than getting lamely over a few of the most prominent points as they appeared to present themselves upon the subject. And I will now not venture to trespass further on the patience of this society, than merely to make a few remarks on the subject of *manures*, with some general observations, which cannot well be avoided. Farming is in truth a science; and from its complex nature, very difficult to be correctly understood. To practice it, even with a tolerable chance of success, requires not only experience, but more especially an active intelligent mind; with habits of constant, and attentive observation. Some knowledge of the elementary principles at least, of Chymistry, Botany, and Zoology, are indispensably necessary.

The proper decomposition of vegetable matter, so that the greatest quantity, and the best quality of manure, may be obtained from any given substance is beyond doubt of primary importance to the farmer, and cannot be attained without the aid of some chymical knowledge. Nor is some general idea of the nature, and properties of the plants, which occupy almost exclusively the attention of the farmer; and upon which indeed his success in life mainly depends, of much less importance to him; these he cannot become acquainted with except he understands something at least of the first principles of Botany. And it would seem, that such knowledge of the nature, and structure of his domestic animals, as might enable him to attend to them properly when well, or restore them when diseased, might not be foreign to his business. I know indeed, that many would deem all such knowledge as superfluous appendages to farming. And such would also look upon it idle for a mechanic to labour for the attainment of skill in his trade, by examining, and tracing carefully the *effects* produced by his labour, to the *causes* upon which they depended. But there can no more be a neat, and successful artist, without a knowledge of science, than there can a farmer. Both 'tis true are daily going on, unaided by any thing except a mere knowledge of their mechanical parts: but, with what success I leave to the judgment of every man of reflection and observation, to determine.

Every farmer knows, that the manure obtained from his live stock, when put upon his land, increases the quantity of his produce. The vegetable matter consumed by cattle, is in their stomachs and bowels, decomposed by the chymical agency of heat and moisture; without the assistance of man; and consequently this species of manure is obtained without his care, or trouble.

This is however, in most cases, much too small in quantity, to serve the farmer any very valuable purpose alone: small too, as it would be under all circumstances, yet through the ignorance and inattention of those to whom it belongs, much of it is often lost.

There are several methods of increasing the quantity and adding to the quality of manures.—Those most worthy attention are:—

First; manure made without the agency of manure; or by vegetable matter without being previously decomposed by having passed through the digestive organs of animals. This may be effected to almost any extent, by cutting and collecting together, when in a green, or succulent state, briars, thistles, leaves of trees with their extreme and tender branches, rushes, wild foxtail of marshes, grass, and weeds of any, and of every species, corn stalks even when dry, and after the ears have been taken off; or in short, any species of vegetable matter, that can be most conveniently obtained. These should be laid in beds of about ten feet wide, and of any length that may be desired, but never so thick, as when covered with six inches of common earth, and pressed down by its weight, to exceed eighteen, or twenty inches in all. The covering of earth, about six inches in depth, should then be laid on; and thus allowed to remain, until the vegetable matter has become completely rotted; which will require a time proportionate to the weather, and to the species of vegetables used; generally one, and sometimes two entire years. These vegetables should never be allowed to wither or dry much before they are covered; if they do, the principal cause producing fermentation will be lost, and they will never rot to any advantage. A powerful manure may be made in this way, but will require considerable time and labour. The farmer will, however, be amply repaid for both, if he conducts this process with care: if not, he will obtain nothing except a lifeless mass of matter.

Secondly. The mixed compost, consisting partly of barn yard manure, and partly of green vegetable matter. After having previously ploughed a bed of convenient size, place upon it five or six inches in depth of crude stable or barn yard manure, and upon this, such vegetable matter as before-mentioned, to the depth of twelve or fifteen inches, when pressed together: and upon these a second layer of manure equal in thickness to the first; after which cover the whole with six inches of common earth, and leave carefully enclosed, for fermentation. This will be found a very effectual method of preparing compost. A three-fold object is fairly attained in this way. First, you obtain a considerable increase of manure, by impregnating what was before a mass of poor earth, with active particles which escape from all vegetable matter in the act of fermentation, and make it equal to the best manure. Secondly, you effect the decomposition of fresh vegetables, much better, and more speedily by placing them thus between two layers of raw stable manure, which is known to generate heat to a considerable degree, almost immediately. And, thirdly, you by this process completely prepare the raw and crude manure of stables, or barn yards, and fit it for your land, by reducing its force to a proper point, and imparting to it a degree of mildness essentially necessary to its successful action upon all the smaller grains, and many of the more tender grasses. Your manure, by this process of fermentation and decomposition, effectually destroy in embryo all pernicious insects, which if suffered to be removed alive with the manure in which they have been deposited, to your fields, could hardly fail to destroy almost any crop. No farmer in fact, should ever permit manure to be removed from his yard, or stable, to his land, without at least one full years careful preparation, if the contrary can well be practised. This latter method of composting is perhaps preferable to any other now in use, as it seems indeed to combine in itself the advantages of every other mode. The quantity of manure is here increased to the greatest possible extent, by the common earth placed below, and above the bed, and by the admixture of fresh vegetable matter. And the *quality* is improved to the utmost, by the strong and steady fermentation, which commences, and continues until the whole mass is fully and completely prepared.

(*To be concluded in next number.*)

No. VI.

OF A SERIES OF

Agricultural Essays,

Communicated by Geo. W. Jeffreys, Esq. of North Carolina, for publication in the American Farmer.

Amelia County, Va. Sept. 11th 1818.

DEAR SIR,—I received your favour dated 25th ult. and expect you soon received mine of about the same date.—I believe I finished my last, with the turnip sowing, and was about to enter upon fodder gathering, of which I have nothing particular to state, other than, that the blades are all pulled one blade above the ear, and when cured, are brought up to the farm yard, and put away in houses; the tops are cut and stacked convenient to the farm yard; after finished my fodder, my peas are gathered, my potatoes dug and put away, and every kind of work done previous to my commencing sowing wheat, that will any wise interfere with it; I even prepare my pen for fattening hogs before, and as it is done in a particular manner, and will tend to show my anxiety for the raising of manure, I shall relate the manner.—Pine poles out of an old field, if there is any, are cut twenty feet long, and as many as will cover the ground twenty feet, they are barked and carted to the spot intended for the pen, which is generally placed along the spring branch for the convenience of water; to the same spot is carted as much straw as will cover the ground twenty feet square, and one foot deep, well trod down; on this straw the poles are laid, a straight fence is made upon the end and edge of the poles, sufficiently high to keep the hogs in, and a long trough is placed in the pen for water; this pen is large enough to fatten from 25 to 30 hogs; if the quantity to be fattened is larger, the pen ought to be made proportionably larger. At the time I put up my hogs, which is about the middle of October, I put a cart load of straw in the pen, and add one every week, as long as the hogs stay up; when I cart up my pumpkins, the most indifferent ones are carted to this pen for early use, and I give my hogs one meal of them every day, as much as they can eat, and one meal of corn in the ear; the corn is gathered out of the corn field, from the latest and softest corn, which is much better qualified to fatten, than the old hard corn; after my hogs are killed, a square pen of rails is made, and the manure out of the hog pen is put into it, the poles taken up and laid by for another year; the earth where the pen was, hoed up two or three inches deep,* and the manure covered over with it, where it lies

* We must again recommend the giving each day a horse cart load of green corn stalks; they are full of saccharine substance—chewed up greedily, act as a medicine, and add rapidly to the quantity of manure. It is decidedly the best use to which corn stalks can be converted to a certain extent. *Edit. Am. Far.*

till the time of breaking up corn ground, when it is carted out: thus I save all their urine and dung, and make eight or ten loads of excellent manure; I make also a low pen, a fence rail square, before every negro quarter door, where their ashes, and the sweeping of their houses are deposited, and carted out every spring, together with my kitchen, hen houses, and other manures, the wood pile trash is removed every third year; thus I collect every thing that can improve the land, and otherwise, would be a nuisance and create disease. Thus far I have digressed on the subject of manure, I now return to the wheat sowing, which I generally commence about the tenth of October, it being unsafe to begin earlier here, on account of the Hessian fly.

I commence sowing on my corn ground where the corn is planted, one wide way, with the corn standing. Where the Hessian fly prevails, corn ground may be sown somewhat earlier than it is safe to sow fallowed ground. I plough in my wheat with the trowel hoe, or shovel plough, following after by a one horse harrow, and chop between the corn hills. I sow on common ground, one bushel per acre, and one and a half on strong land. I prefer the trowel hoe on account of its breaking the ground as deep as it has been broke before, at the same time harrowing it up light, without turning it over—of consequence the seed is deposited only shallow—few grains sinking in the ground deep, and following it with a straight tooth harrow, the ground is levelled, and at the same time well pulverized, to admit air freely; —a circumstance of some importance in the vegetation of seeds. If you have seen a piece, written upon this subject, in the Richmond Inquirer, you will the better understand this remark. After the twentieth of October, I cut up my corn and stack it on poles, and as there is no dividing fences round my corn fields, two sides of it lying open; I stack as much as I possibly can off my corn ground, and even cart some, where it lies convenient; by this time my stock are up in the farm yard. I cart a few loads every morning, on the stalks, which are stripped at night, and the stock fed with them. They are the more nutritious the earlier they are got in, and by commencing early, I am often enabled to get them all in by Christmas, by which means they are much more trodden and rotted for the spring manure; besides, the less the wheat is carted on after being sown, the better—if I sow any wheat in November, I put one half more on the ground, proportioning it according to the quality of the ground, and period of sowing,—believing that one bushel put on the ground, the last week in September, will produce a thicker (if there is no Hessian fly) than six pecks the first of November. On low grounds that are ridged, if the land is light and absorbs water readily, I plough the wheat in with the trowel hoe,—harrow it, and open the furrows and keep the beds as flat as possible—if the ground is stiff, moist and of a cold quality, I then plough the wheat in with a single clagon or barshare, with a shallow furrow, ploughed up to the corn—harrow after and open the furrows, keeping the ridges well rounded up, chopping between the corn with hand hoes; such land ought to be sown the first, and in good dry order. Last year, I began such land early, but by the wetness of the season, was driven out of the low grounds, and before I was able to finish, it was the last of October. Three weeks after the first sowing, the first sown wheat was the most luxuriant crop in the neighbourhood, if not in the county—the last sown was entirely killed in the winter. After finishing sowing my wheat crop, I begin to get in my corn, carting some stalks every morning, till the whole is carted up that was got off the ground—the balance that were cup up, I cart in the same manner, if the ground is dry and in good order, otherwise they lie till the ground is frozen; and every frosty morning I cart, till they are all carted in. I have a pair of cart wheels made on purpose, ten inches on the tread—the advantage of a pair of such wheels is very great on a farm —you can get your crop of corn out of the low grounds, when you could not do it with narrow wheels, without much injury to the crop—you can cart corn stalks on a light frost, when the ground would be torn up with the narrow wheels—good roads on a farm of any considerable size, it is a matter of much importance, in constantly carting in the winter season of rails and wood—among planters, so destroys the land, that old roads washed into gullies, are to be seen all over their plantations, and is a constant theme of complaint; if their plantations were to be converted into farms, which would require four times the quantity of carting, what would they do? I have not the least sign of gullied roads on my farm—and on another that I have, containing fifteen hundred acres, there are no gullied roads—when I cart out manure on this tract, often more than a thousand loads at a season—two narrow wheeled carts and a wagon running at the same time, and one pair of broad wheels 12 inches, running at the same time, levels the road, as fast as the narrow wheels cut it to pieces; and no gullies, or washed, impassable roads are to be seen; but the reverse, several of the old gullied roads made level, though the land is broken. I cannot speak too much in praise of a pair of broad wheels on a farm; the draught in the summer is rather harder, but in the winter, when the ground is soft and the narrow wheels cut in the ground,—the broad wheels pull easier, and there is no need of their constant use. I have had a pair upwards of 20 years. When I cart up my corn, it is thrown into the barn in the shucks, and is shucked out only at night, and in bad weather—it is often March before it is finished—as soon as the hard weather or winter sets in, I put up my sheep in an open shed, and they are not let out, till there is plenty of grass to support them, except every evening to go to water with the other stock; they are fed night and morning with fodder; in the middle of the day, they have a meal of turnips and as much clean straw as they can eat, and serve them also for litter—once a day they have corn or peas given them, about a quart for every six sheep.

I believe I before informed you, that the horses were kept up the whole year. My calves that are weaned from the cows in the fall, are put in an open shed, and fed all the winter with tops, and once a day there is put in a trough, as much excellent May wheat chaff, as they can eat, with about a quart of shelled corn for every 4 calves—this keeps them very well through the winter, and their shelter is well littered with straw. I consider that a good farm ought to have no more stock, than to keep them well—and permit at least one half of the offal of the crops to be wasted for manure. Thus I endeavour to make manure by every means in my power, though I have never yet carted wood trash to the farm yard, considering it too weak to pay the expense; but a better way of using it, is to cart it into your summer cow pens—pen the cattle on it, and turn it in, as often as you move your pens, to lay fold in the ground till the next year's crop—in this way I have used it, but I prefer wheat straw if I have it, which I most commonly have. Thus on my little farm of 240 acres of open land, and with six indifferent labourers, I make between 4 and 500 cart loads of manure, as much as can be drawn by two yoke of oxen.

I believe I have now gone through one year's operations on the farm, though there may be some trifles omitted—little more occurs to my memory worthy of mention—if the detail should prove useful to you or your society, I shall feel myself amply compensated, and with all due respect,

I subscribe myself, yours, &c.
WM. MERIWETHER.

Geo. W. Jeffreys, Esq.

FOR THE AMERICAN FARMER.

REMARKS ON THE CULTURE AND VALUE OF

GUINEA GRASS,

And on the culture and relative value of

MANGEL WURTZEL, POTATOES, AND RUTA BAGA.

Mr. Skinner,—I send you for yourself and such of your friends as may be disposed to make a further trial of it, a few seeds of the *Guinea Grass*. It has been now two years since they were gathered, (in the W. I.) but I have no doubt that they are still sound, as they germinated unusually well last year, and have been carefully preserved since. I would give a detailed account of my own experiment in the cultivation of this useful grass, if after your publications on the subject, it were likely to be of any sort of use. The result however, has been such as might have been fairly anticipated. In a climate as far north even as Virginia,—it could hardly be supposed that a plant, the nature and habits of which had been adapted to the tropical climates, would be capable of surviving our cold and variable winter—so it has turned out with the guinea grass; but in every other respect it has answered my most sanguine expectations. It came up well, grew rapidly, required but little tillage, and though the land was very far from being rich, and the summer most remarkably dry, produced a heavy crop of four cuttings. My grass I think was as good, and that which was cultivated upon richer land by gentlemen to whom I gave seed, was I know much better, than any which I saw in the West Indies. The great difference is (and

certainly a most important one) that there it is perennial, the plantations of it being to renew only once in four or five years, whilst here it will require an annual sowing. There they propagate it from the slip and parted root; whilst here, I fear we shall be unable to raise even our own seed. The extraordinary value of the grass ought however, to induce every exertion to habituate it to our climate. A few plants preserved in a warm room or celler during the winter, would probably produce seed the second year, which might become the parent of a stock, fitted gradually (by a similar management for two or three successive winters) to the temperature,* and other circumstances of the country. If however we should should finally be unable to raise the seed, it can easily be imported to any extent from the West Indies, and most probably from Georgia and the Floridas. That it would repay the cultivator, (could he procure annual supplies of seed,) very far beyond any other grass and have seen, I have no doubt. It would be particularly valuable, I should think to the proprietors of small farms and lots in the neighbourhood of the towns, where it is so important to have large supplies of green forage, nor would it be less happily suited, to all the purposes of those, who are concerned in the soiling of cattle.

I have made during the last season, a small essay towards the cultivation of the *Mangel Wurtzel*. The trial has been every how satisfactory, and convinces me of the very great usefulness of that plant. My information concerning it, (as well as the guinea grass) was derived first from the communication on the subject, in the Memoirs of the Agricultural Society of Philadelphia. My mode of cultivation was similar to that detailed by Judge Peters, Mr. Jones and Mr. Lloyd, in the 3rd and 4th volumes of that work. Though the number of plants did not exceed 600 or 800, I am sure they did not receive more care or labour, (and certainly less manure as well as original fertility of soil) than might well be applied to the same object, on a very large scale. The roots weighed, except a small proportion of smaller ones—from 4 to 10½ pounds. They grew in rows two feet apart, and at twelve inches distance along the rows. If their average weight was 4 pounds, (and I think it must have been, though they were not all weighed) the result was a crop (besides the leaves) of about 39 tons. According to the analysis of Sir H. Davy, the Mangel Wurtzel, (for it is essentially the same with the red beet, I think sweeter) occupies a high place on the scale of nutritive vegetables. It should come next to the various species of small grain and pulse, for though the potato contains a medium of $\frac{230}{1000}$, and the red beet $\frac{148}{1000}$ of nutritive or soluble matter, yet is 121 parts of this 148 sacharum; whilst the potato has but from 15 to $\frac{20}{1000}$ of the same nourishing principle. Compared with the fashionable Ruta Baga or Swedish turnip, the excellence of the Mangel Wurtzel, is still more conspicuous. The Ruta Baga has, in all, but $\frac{64}{1000}$ of soluble or nutritive matter, of which 51 are sacharum. I do not know the relative value of gluten sacharum and mucilage—(the useful constituents of vegetables,) but if the idea of your correspondent "*Reconciliator*," (page 390 an earnest advocate of the Ruta Baga, and who in contesting with Mr. *Pickering*, the relative merits of that plant, and the potato supposes the value of sugar to be to that of starch or gluten, as 3 to 1) be correct, then will the relative value of these three plants stand thus:—Mangel Wurtzel, 390—Potato, 266—Ruta Baga, 166.†

With regard to the quantity which may be raised on an acre, the Mangel Wurtzel has an advantage still more decided. From 200 to 300 bushels of Potatoes, would I suppose, he considered a good crop in a climate and soil best suited to their growth. Mr. Cobbet, who has added so much to the fame of the Ruta Baga in this country; raised on Long Island from 400 to 640 bushels. The *great crop* raised in the neighbourhood of *Liverpool*, of which his son writes him an account, (page 35 of the American Farmer,) was 37 tons, or (assuming as he does 40 heaped bushels to the ton) 1430 bushels of the Mangel Wurtzel. I have myself raised I think, about 39 tons. Judge Peters does not state the amount of his crops, but says that the roots averaged four pounds. If they grew on spaces of two square feet, the product must have been 39 tons. In England and Ireland they have raised the enormous quantity of from 50 to 84 tons. If these sums be multiplied by 40, (the number of heaped bushels in a ton,) they give in America about 1560, and in England and Ireland from 2000 to 3360 bushels. Now upon these data, and if the value of sugar to starch and gluten be really as 3 to 1, then will the *relative value of the average produce from an acre of these plants* be, of Mangel Wurtzel 899,340, of Potatoes 66,500, of Ruta Baga 136,618.‡ Every practical farmer knows that the accuracy of such calculations cannot be entirely relied on; but they also know, that they do serve in some measure to give an idea of relative value.

In what way could an acre lot in the suburbs of your city, be so profitably employed as in the cultivation of Guinea Grass, and Mangel Wurtzel? Or how could that eminent and successful grazier Mr. Barney for instance, so well employ 6 or 8 acres of his farm? The grass and leaves of the Mangel Wurtzel, (mine afforded four pullings) would yield the best and greatest supply of green food—particularly during the *latter* part of the summer, when the first crop of clover has failed, and the second is less suited to the health and appetite of the animals; and the roots, (easily preserved according to my own experience on conial stack, out of doors) would give the best and greatest supply of succulent winter food.

I see in your Index a reference to page 403, for a communication from Mr. Pickering on the Mangel Wurtzel. I regret very much that I have not received, or yet seen that paper. In addition to the observations of Mr. Pickering, which like all his agricultural essays, I have no doubt are valuable; I think you would render an acceptable service to your subscribers, by re-printing some of the communication on the subject from the Memoirs of the Agricultural Society of Philadelphia; a work, which useful as it it is, cannot in the nature of things circulate so extensively as your paper.

Very respectifully, your ob't serv't.

X. Y. Z.

April 15th, 1820.

FOR THE AMERICAN FARMER.

Baltimore County, April 5, 1820.

Mr. SKINNER,—

SIR—If you think the following *facts*, relative to *Ruta Baga*, are worth a place in your valuable paper, you are at liberty to publish them with, or without the name of yours respectifully.

E. S. THOMAS.

Ruta Baga Experiments.

1819, July 27—Sowed three fourths of an acre of Ruta Baga, in ground prepared as follows, viz:—Stubble turned in deep—harrowed fine—furrowed deep at four feet distance—filled the furrows with *earth burnt ashes*, (burnt according to the plan prescribed by Mr. Cobbett, in his "Year's Residence") which I covered by turning a furrow over them on each side; this formed a ridge about eighteen inches broad at top, which being smoothed a little with a hoe, and a drill made along the middle of it with the same instrument; I then sowed the seed and covered it with a hoe, from one to two inches deep; it came up on the 7th of August. When the roots were nearly a fourth of an inch thick, I thinned them to about a foot distance in the rows, and kept them free from weeds by two good ploughings and hoeings, (they would have been the better for a third) notwithstanding the unexpected dry season;—the last of November, many of them would measure fifteen inches in circumference—I left them to stand in the ground all winter. I was off the state, from the middle of December to the middle of February; on my return at the latter period, the snow had just disappeared, when I found my turnips had grown at least one fifth larger, since I saw them in December; many of them measuring six to seven inches diameter. The latter part of February was unusually warm for

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* See Darwin's Phytologia, Sec. XIV. 1. 1. for some curious facts concerning the acquired habits of plants.

"The grains and roots brought from more southern "latitudes germinate here sooner than those, which are "brought from more northern ones, owing to their ac-"quired habits. Fordyce on agriculture. It was ob-"served by one of the scholars of Linnæus, that the "apple-trees sent from hence to New England blos-"somed for a few years too early for that climate, and "bore no fruit; but afterwards learnt to accommodate "themselves to their new situation. (Kalm's Travels) "Vines in grape houses, which have been exposed to "the winter's cold, will become forwarder and more "vigorous than those, which have been kept during "the winter in the house. (Kennedy on Gardening.) "This accounts for the very rapid vegetation in the "northern latitudes after the solution of the snows."

† The Mangel Wurtzel contains $\frac{121}{1000}$ of sacharum and $\frac{27}{1000}$ of gluten and mucilage. If the 121 part of sacharum be multiplied by 3, and the product added to the 27 of gluten and mucilage it gives the result as I have stated—and so of the Ruta Baga and Potato.

‡ This calculation is clumsily managed perhaps, but the *proportions* are essentially correct. If one bushel will give, of Mangel Wurtzel 390, of Potatoes 66 and of the Ruta Baga 166, then will the average number of bushels per acre, which may be raised of each of these plants, give the above several sums.

the season. The tops began to grow rapidly, but the severe cold nights of the early part of March, first freezing, and the warmth of the middle of the day, as often thawing them; many rotted in the ground—had they been pulled when the warm weather *commenced*, this would have been prevented. They are the cheapest, and with the exception of corn, they are the best food for milch cows and hogs, I ever met with—I have been feeding mine upon them for the last six weeks. Within a week past, I had them all pulled, (except those left for seed) and thrown in heaps. Should the weather prove too warm, I shall spread them, in which way they will keep good until mid summer. Having repeatedly heard it asserted, that horses would not eat them, I determined to ascertain the truth of the assertion; accordingly, a parcel of them were washed and cut in pieces, and each horse served with about three gallons of them, when two out of five eat them greedily, two others eat them but with less appetite, and the fifth refused. They had no other food allowed them for the night, and the next morning not the smallest piece was to be found in their trough.

TO THE EDITOR OF THE AMERICAN FARMER.

Chester Town, 29th April, 1820.

DEAR SIR,—In a letter written to you a few weeks ago, I mentioned to you, that I was cultivating a species of clover, the seed of which I procured from my friend Bedingfield Hands, Esq. of this place, and which he brought with him from Italy, the autumn before the last. If I recollect aright, I also promised you, that when the clover bloomed, I would send you some of the blossoms for your inspection. I have now the pleasure of doing so. You will probably remember that I stated to you in my former letter, that the clover from the seed which I sowed last spring, perished during the summer, (but not until after the seed had ripened) in consequence, I believed, of the uncommonly excessive heat and drought. The stocks I now send you, are therefore, from the seed which fell from the plants of the last year, after I had gathered all the seed that I could conveniently, and which vegetated late in the autumn.

As I do not find this species of clover particularly described in any book upon Agriculture, with which I am acquainted, I will be much obliged to you, to give me any information that may be in your possession, or in that of any of your friends respecting it. It is certainly a beautiful plant, and the growth is early and extremely vigorous; but I cannot at present determine *positively*, on account of the uncommonly unfavourable season of the last year, whether it be a perennial, or annual plant only. This year will determine that matter with me. I sowed a few weeks ago, some of the seed which I sowed last year, in a lot with spring barley, and it is now up, and growing finely.

If this clover be new to you, and you shall thing it deserving of attention, I will with much pleasure give you any farther information respecting it, that you may require, and that I may be able to furnish you, from my own experience of it.

Sincerely wishing you every success in your very valuable work, I am with much respect and esteem,

Dear Sir, yours truly,
J. M. C. ANDERSON, Jr.

J. S. Skinner, Esq.

P. S. I will be much obliged to you, if you can do so without inconvenience, to show the clover stocks to my venerable friend, James H. M'Culloh, Esq. and ask him, in my name, to let me have his opinion of the grass. If he shall think favourably of it, and shall wish to have any of the seed, I will with great pleasure supply him with some (Deo volente) this fall—some, also, shall of course, be at your service.

Again, yours,
J. M. C. A. Jr.

TO THE EDITOR OF THE AMERICAN FARMER.

ON THE CULTIVATION AND USES OF THE

SUN FLOWER.

SIR,—Being a distant subscriber, and resident in a part of the union, where the newness and fertility of our lands, render it unnecessary to improve the many useful hints detailed in the American Farmer, for restoring or enriching wornout or reduced soils; still there are various subjects of common interest in which all may participate without reference to situation or climate. Under this impression I became a supporter of your useful work, and have been pleased with the attention bestowed by scientific cultivators to enlighten the public by detailing minutely their experiments and practice in agriculture. In turn, I have deemed it possibly useful to communicate a few facts relative to the culture of the SUN FLOWER, for the purpose of making OIL; in hopes that it may be fully tested by some careful hand, who will communicate the result. I was led to the subject by a paragraph relative to oil, in a late number of the Farmer, perhaps from the southward.

A few years since, being then *personally* engaged in farming, among other experiments, I planted Sun flower seed, on the ninth of May, in a rich black soil, drill fashion, rows four feet apart, plants from two to three feet asunder when thinned, amounting to eight square rods. They grew well under a common corn cultivation, and ripened, and the seed heads were cut off the stalks in a dry sunny day about the first of October, carried directly into the barn and threshed out immediately, the seeds separating easily from the heads, and produced four and a half bushels, equal to *ninety bushels per acre.*—Many of the stalks grew to the height of twelve or fourteen feet, and were as thick as a stout man's wrist. They bore flowers in various numbers from 5, 10, 15 to 20, and upwards on a single stalk, generally two or three very large flowers, and the rest small in proportion, as they graduated downwards on the arms or branches of the stalk. I had been induced to expect that the seed would produce a gallon of oil to the bushel, and of the finest quality, perhaps equal to sweet oil. Of the *quality* of the oil for fine lamps and other uses, I have no doubt. But in the *quantity*, I was disappointed. I had it expressed at a common mill, where linseed oil was manufactured, and much was wasted and lost in the process, on account of the small quantity of seed, and the flavour of the oil affected by the rancidity of the flax seed. The oil is certainly very fine, and perhaps for patent lamps exceeded by none other whatever. To what other general uses it might be applied, as paints, varnishes, &c. I cannot say, but I am convinced from the above experiment, it might be made a profitable culture, wherever oil is much an article of use. If the seeds were shelled or separated from the dry outside husk, (similar to shelling barley or pelts) before bruising, I think much would be saved as to the quantity made; as I attributed much of the loss to the dry absorbing quality of the husk or shell of the seed.

I should be sincerely gratified in hearing any further information relative to this article, or having it further tested by some skilful hand, who would communicate the result to the public.* D. C.

Zanesville, Ohio, April 20th, 1820.

*Amen! *Edit. Am. Far.*

FROM THE RURAL MACAZINE.

Mill Feed for Cattle.

Brandywine. 2d mo. 3, 1820.

REUBEN HAINES,

Esteemed friend—I avail myself of a leisure hour to communicate my opinion on the subject on which we had some conversation when thou wast as my house. I allude to the importance of a more general use of mill feed for cattle in the neighbourhood of cities and towns, where hay almost always commands a high price.

We will, in the first place, view the subject at the cost of the respective articles in your market at this time.—Shorts can now be had at 30 cents per double bushel, weighing about 35 lbs.

100 bushels of shorts, weighing 3500 lbs. neat, will cost	$ 30 00
3500 wt. of hay, at 25 dolls. per ton, will cost	39 12
Difference,	$ 9 12

Here there is a difference of $9 12 cents, in favour of shorts, in a given weight of each; but I am quite confident, in my own opinion, that, taking an equal weight of each, there is *double the sustenance* in the shorts; and if this opinion be correct, it shows the following important result:

7000 lbs. of hay, at 25 dls. pr. ton, would cost	$ 78 25
While 3500 lbs. of shorts, in which there is equal if not greater nutriment, would cost only	30 00
Gain in favour of shorts,	$ 48 25

But it appears to me there is another important saving would result to the farmer, from the introduction of mill feed. It would enable him to keep his stock of horses at a great deal less expense than he now keeps them. They would be more healthy, and *all his hay* might be saved for the horned cattle. By a very slight mixture of shorts with cut straw, or cut corn-stalks, it would make very palatable food; and the result in this method, compared with foddering on hay, would be as follows:

One hundred bushels of shorts would be ample to mix with two tons of straw, and two tons of stalks.

The shorts as heretofore stated, would cost	30 00
2 tons of wheat, barley, or oat straw, at $5 per. ton	10 00
The corn-stalks are now generally put in the barn-yard: allow what paid for hauling them, say 2 50 per ton,	5 00
Allow also for trouble in cutting the straw and stalks	10 00
	$55 00

The weight of the foregoing as follows, viz:

The shorts,	3500 lbs.
2 tons of straw,	4480
2 tons of stalks,	4480
	12,460

An equal weight of hay, at the present price 25 dolls. would cost	139 25
Difference,	$84 25

Thou wilt readily perceive, without my dwelling on it, that the above method would answer equally well for store cattle as for horses. By the present mode the corn stalks are almost wholly lost, and a great proportion of the straw trodden under foot in the barn-yards. One benefit that would result from the change of feeding, and which must be obvious to every one, would be enabling every farmer to keep a larger stock; and thus *increase his manure*,—the grand secret, after all is said, in farming well, and doing it to advantage.

If it is alleged that my calculation of hay is too high, it may be observed that the shorts are also estimated at a price higher than they often command in the Philadelphia market. I have known them as low as 20 cents; and 25 cents is a very common price in the fall of the year. They may safely be put in bulk in the 11th mo. and will keep sweet until the ensuing spring.—I have thus hastily thrown my ideas together on this subject. If thou canst glean from them any thing of importance, I shall be glad.

Thy assured friend.

JAMES CANBY.

Flemish Husbandry.

TO THE EDITOR OF THE PLOUGH BOY.

SIR,

Much has been said in praise of English husbandry, it is a well known fact, that this vaunted system is surpassed in many countries which do not possess equal natural advantages. In Scotland, agriculture has progressed at least half a century beyond that of England, where the soil and climate is far more congenial to the productions of the earth than the "bleak mountains of Caledonia." But no where in the world is the contrast so marked as that between the Flemish and English mode of cultivation.

The average produce of a crop of wheat, in England, is 24 bushels per acre. In Flanders it is 32 bushels. In England, the system of *fallows* almost universally prevails. In Flanders, it has been unknown from time immemorial; two crops, in many cases three, being uniformly raised annually upon the same field. The following comparative tables, as exhibited in "Vanderstracten's sketch of the Flemish system," shew clearly and correctly its superior advantages over that of England.

Produce of the Flemish farmer from one acre, for 12 years.

Wheat, 32 bush. per acre,	4 crops	
Barley, 60 do. do.	4	do.
Flax, hemp, coleseed and potatoes,	4	
Roots and vegetables for the food of cattle,	10	do
In 12 years,	24 crops	

Produce of the English farmer, according to the Norfolk course, for the same period.

Wheat, 24 bush. per acre	3 crops
Barley, 32 do. do.	3 do.
Turnips,	3 do.
Clover,	3 do.
In 12 years,	12 crops

The immense difference in favour of the produce of Flanders, does not arise, as might be supposed from its possessing a better natural soil, or a milder climate, than England. but entirely from the different mode of cultivation, pursued in these two countries. At no very distant period, the fields of Flanders, now so productive, were little else but loose sand and gravel, whereas the soil of England, was always naturaly fertile, and in part, lies under a more southerly parallel than Flanders.

The rich, abundant and healthy crops obtained by the Flemish farmers, may be traced to the following causes:

I. The abundance and judicious application of manure. II. Digging all the lands on their farms with the spade every six or every three years. III. The complete extirpation of weeds and noxious roots. IV. Regular and repeated hoeing. V. A careful choice, and alteration, of grain and seeds for sowing. VI. An improved rotation of crops.

"The whole secret (observes Vanderstacten) respecting the superiority of Flemish agriculture, consists in this: the farmers procure plenty of food for their cattle—food, which excepting clover is raised from the same lands which have already yielded their crops of grain, &c. They keep the greatest possible number of cattle, feed them in the stables plentifully, and render their food palatable. They collect the greatest possible quantity of manure, of which they preserve the fertilizing salts by a suitable progress of fermentation. They weed their grounds thoroughly and repeatedly. They totally extirpate noxious plants and roots, every six or every three years, by digging all the lands on their respective farms—an operation by which they revert to the surface a stratum of fresh soil, that for three or for six years has been absorbing the salts of manure as they filtrated to the bottom of the roots; a stratum of soil which has produced no crop during the same period. They, moreover, dress their grounds to the precise point of perfect pulverization. These are inestimable advantages, which cannot be obtained by any plough whatever: hence the drift of the Flemish adage—'Never to let the naked ground lie open to the sun in summer for more than three days."

"In truth, to say that there exists a vast province, in which the price of lands has been quadrupled within fifty years, and which is neither placed under a more favourable climate, nor enjoys a greater fertility of soil, than England; from which fallows in general have been banished from time immemorial; in which the greater part of the lands produce in 9 years at least 15 havests, of which those of grain yield, one year with another, as high as 32 bushels of wheat per acre: those of barley, 60 bushels; and those of oats, 90 bushels; and where the borders of the fields are planted with trees, in such numbers, that by their sale the proprietors acquire, every 40 years, a sum of money equal to the soil; to say this, appears, to other than English readers, to repeat a tissue of fables.* The less informed attribute this uninterrupted succession of harvests to the inexhaustible fertility of the soil; but intelligent and well informed travellers attribute it, on the contrary, and with the best reason, to the indefatigable industry of the inhabitants, and to a highly improved mode of culture, of the details of which they are themselves ignorant, and which beside, from their complication, and the great variety of the productions of the soil, require a profound study, of many years duration, to which few of them have either the inclination or the leisure to apply."

This correct, though "bird's eye" view, of Flemish husbandry, merits farther amplification, in order to furnish distinct data to the intelligent and enterprising agriculturist. My subsequent communications will be directed to that subject.

Respectfully, yours,

GEO. HOUSTON.

New York, April 18, 1820.

* In Flanders, wheat yields 20; rye, 26; barley, 26; and oats, 40, for one. Wheat hold only the fifth rank in value in the harvest of Flanders. In England, wheat never yields more, on an average, than 10 or 11 for one; barley, something less than 10 to 1; and oats only between 8 and 9 for one. In some highly ameliorated farms in the county of Suffolk, Arthur Young reports a produce of 36 bushels of wheat, and 64 bushels of barley, to the acre; and that in the county of Kent, soils of middling quality, equally ameliorated, yield per acre, 52 bushels of wheat, and the same quantity of barley. But in Flanders, there are soils which yield much more than this—namely, 72 bushels of wheat, 120 of barley, 128 of beans, and 72 of coleseed. These, however, are extreme cases, which do not effect the general question of comparative growths; while, however, they shew that the amelioration of land, in any country, is calculated greatly to increase its productiveness.

FROM THE RALEIGH STAR.

Lincoln Corn Pounder.

The usual mode of feeding Indian corn to cattle and hogs is wasteful and slovenly in the extreme. The cob is not eaten and the corn is neither ground nor boiled. It is a well established physiological fact that the good health of animals requires that the aliments for the stomach should afford both nutriment and mechanical distention in due proportions. In the usual method of feeding, these proportions do not exist, and besides the nutritious quality is only partially extracted. The grinding of corn is sometimes practised by those who have mills, and boiling by those who have not. Meal is sometimes mixed with hot water and fermented. All these are improvements in feeding, but these are not sufficient. Lately a mill of cast iron has been invented which converts both corn and cob into meal, and is used also by tanners in grinding their bark. This improvement is valuable.—The cob, while it affords in itself much nutriment, furnishes a degree of distension to the stomach which is necessary to its proper action. If to this grinding of the cob and grain is superadded fermen-

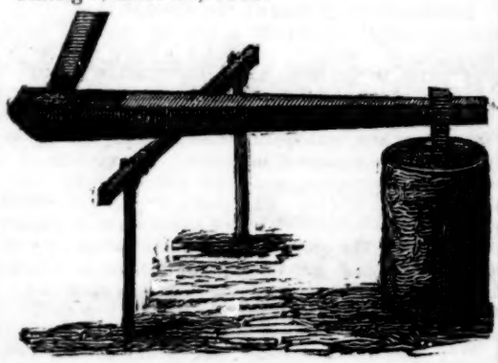
tation or boiling, the economical process is nearly complete. I have not time to say what the subject requires in regard to fermentation. Boiling not only renders the articles acted on soluble in the stomach, but it does more—it adds nutriment furnished by the water itself. The experiments of Count Rumford are full and satisfactory on this head. Let those who doubt the nutritive qualities of water be reminded that many kinds of fish live, grow and fatten in pure water, without any other food whatever. Every one has seen the gold fish, which have lived for years in globes of pure water, that are sometimes put by the curious into cages of canary birds. Water and air constitute the entire aliment of vegetables, and give them bulk without diminishing at all the quantity of soil in which they grow. The perfection of feeding corn consists in preserving the cob, grinding the whole into meal, and in the cookery. The iron mill is excellent, but too expensive for most farmers. What is wanting then is to have the corn with its cob powdered by some cheap and simple method that every one may avail themselves of. Such a one accident lately made me acquainted with, and I think it is so valuable that I am desirous of seeing it introduced into general use, and shall attempt a description of the machine by which the process was effected.

This machine I saw last summer in operation on the road between Lincolnton and Morganton. It was a horizontal shaft, with a beater at one end, poised by the weight of water falling into an excavation at the other. The shaft or helve was about fourteen, possibly sixteen feet long. At two thirds of its length from the beater it rested by a notch across the sharpened edge of a piece of timber, lying in a transverse direction, serving as the pivot or fulcrum for the shaft to move on. The beater was a piece of wood two feet, or rather more, in length, fixed by a mortice and tennon to the end of the shaft; its face was about two inches and a half in diameter, and plated with iron. The mortar which received this pestle or beater was the hollowed end of a log wide at top, narrower at bottom and would contain nearly a bushel. The other or shorter end of the shaft was excavated into a trough about three feet long, eight inches wide, and the same in depth. The extreme inner end of the trough formed an angle of ascent from the line of the bottom of about 35 degrees, affording thereby an easy exit to the water when depressed by its weight. This very simple machine, (for I have described the whole of it) was placed upon the small run of a spring branch, where there was a descent of about two feet. The water was conveyed into the trough by a spout which approached it at right angles, and the trough was filled and discharged about twice in a minute. Every morning, and again at evening, this mortar was filled with ears of corn which in twelve hours were found reduced to a very fine meal. It was capable of converting to meal three or four mortars full in a day, but two were sufficient for the use of the plantation, and the mortar was attended to only when it could be done with convenience. In a wet season, when the spring run afforded more water, it moved with increased celerity, and was capable of increased work. The machine was without cover, and I observed barn door fowls around it, but afraid of the motion of the shaft, they never ventured to purloin from the mortar. The whole expense of this, I think, could not have exceeded four or five dollars.

I know not the inventor of this machine. There were a few others, I was told, in Lincoln and Burke. Its extreme simplicity, cheapness, and utility, and the means afforded to almost every one of putting it in motion, ought to recommend it to general use. I am persuaded this method of pounding corn, united to boiling or fermentation, would double the value of crops for feeding. No rule is necessary to be observed with regard to the dimensions, or proportions of the machine. It must duly be noticed that the trough filled with water is heavy enough to raise the beater, and this can be ascertained, and the proportions duly adjusted by experiment.—If Mr. Henderson thinks but half as favourably of this machine as I do, he will give the foregoing a place in his useful paper.

CALVIN JONES.

Raleigh, Dec. 20, 1818.



POETRY.

Many and beautiful are the lines, which have been written on the melancholy occasion, to which the following are dedicated—but this is the only writer we have seen, whose eulogies have not been diluted with unkind reproaches.—We select them for the generous sentiments of the author, no less than for their intrinsic beauty. *Edit. Am. Far.*

FROM THE FRANKLIN GAZETTE.

Decatur's Grave.

Why weeps the muse her glory fled?
Why droops Columbia's Genius so?
The laurel wreath is sear and dead,
DECATUR'S gallant form is low!

Ye hoary warriors, hither bring,
Your tribute to the kindred brave;
Ye beauteous maidens, haste and fling,
Your chaplets o'er DECATUR'S GRAVE.

Let those depart who tear away
The wreath that marks a godlike soul;
Let those depart who chide the lay,
And for one error blot the scroll—

Approach ye generous, feeling *few*,
Where selfishness can ne'er intrude;
Approach—DECATUR'S grave bedew;
Sweet are the tears of GRATITUDE!

The hero mingles with the dust,
But glory shrines his deathless fame;
The tomb receives its hallowed trust,
But unborn ages breathe his name.

Yes, mighty dead! in every breast,
Thou still shalt live, to memory dear;
This turf by virgin footsteps prest,
Shall witness sorrow's dewy tear!

Hither shall sympathy repair,
To deck her FAVOURITE'S early tomb;
While Charity with aspect fair,
Shall mantle thy untimely doom.

Farewell!—The gem that hailed thy morn,
Now sunk beneath the western sky,
Shall wake for thee a brighter dawn,
The star of glory ne'er can die! W.

THE FARMER.

BALTIMORE, FRIDAY, MAY 5, 1820.

In the whole family of grasses, we never saw any thing so beautiful, or apparently more luxuriant, than the species of Trifolium, sent us by Doctor Anderson, of Chestertown. By a great number to whom it was exhibited, it was universally admired, for its early and vigorous growth, and long scarlet coloured head, about the size and shape of a head of the Chile wheat—from no one, however, could we get any account of it, until Captain Ballard and General Harper called to see it; both of whom have been recently in Italy, where they saw it growing in great luxuriance. Captain Ballard says he saw fields of it as high as his breast. It is there called *Lupinella*, and is in great estimation—he brought home four or five bushels of the seed, which has been given to different persons—a large portion of it to Mr. James Mackubin, near Annapolis, and it could not have fallen into the hands of a more careful and observing cultivator.

Before we received any account of it from these gentlemen, we had already enclosed stalks of it to some of our correspondents in the eastern states, most likely to know something of its history; and had intended to have sent it also, to some eminent agriculturists in the south. In the mean time these gentlemen happened in, and related of this new clover, what we have here mentioned.

When we consider that this grass is so beautiful, and at least two or three weeks in advance of clover; affording as it appears to us the much wanted desideratum, especially in a soiling system—it is wonderful that so little should be known of it.

In the "*Treatise on Agriculture*," republished in the 1st volume of the Farmer from the Albany Argus, and ascribed as we before-mentioned, by report, to the classic and polished pen of General Armstrong—Lupinella is once incidentally mentioned as a species of *annual* clover; such no doubt, is this of Doctor Anderson's, probably the *trifolium rubens*.

As for its qualities and value as far as with our limited observation, we could venture to express an opinion, we should say that in its very early and rapid growth, it would prove a great acquisition for soiling milch cows, and other stock, being fit to be cut at least two weeks before common clover, its stalks appear to be very succulent, and it would probably prove a fine crop for *turning in*: on the other hand from the size of the stalk, it is to be feared that it could not well be cured into good hay, especially in warm or damp weather—perhaps however all difficulty might be avoided on this account, if intermixed in the stack with dry straw and *salted*, which ought always to be done.

Present Prices of Country Produce in this Market.

Actual sales of WHEAT—RED, per bushel 98 cts. to $1 1—WHITE do. in proportion—CORN, white, 45 to 48 cts.—RYE, 56 to 58 cts.—OATS, 33 to 35 cts.—HAY, per ton, $17—STRAW, do. $10—POTATOES, 56 to 62 cts.—FLOUR, from the wagons, $4 50—WHISKEY, from do. 31 to 31½ cts.—MUTTON, per lb. 6 to 8 cts—CATTLE, per cwt. $6 to $7—Retail, in the market, at 4 to $10.—HAMS, 12½ to 16 cts.—EGGS, per doz. 10 to 12½ cts.—BACON, log round per lb. 10 to 11 cts.—HAMS do. 12½ to 14 cts.—COTTON, Upland 16 to 17 cts.—FEATHERS, 45 cts—SHAD, No. 1, trimmed, $6—Do. do. untrimmed, $5—English LEAD, $17—OIL, boiled, $1 37½—Virginia TOBACCO, $6 75 to $7—Maryland TOBACCO, from the wagon, $10 to $18—Patuxent, do. common crop, per cwt, $7, 8, 9, 10, 11 & $12. all agreeable to quality—Second quality, $5, 6, & $7.

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